

[GAS DISTRIBUTING SYSTEM FOR DELIVERING PLASMA GAS TO A WAFER REACTION CHAMBER]

Abstract

A gas distributing system and a method of operating the distributing system is provided. After setting a few control valve parameters, the gas distributing system automatically adjusts the distribution of plasma gas inside a wafer processing chamber during a dry etching or a film deposition process so that uniform single wafer is produced. First, a main gas conduit is redirected into two separate gas conduit inside a gas separator. One conduit connects with a gas nozzle near the central region of an upper electrode panel distributor and the other conduit connects with a gas nozzle near the peripheral region of the upper electrode panel distributor. An O-ring between the central region and the peripheral region prevents any mixing of gas from the nozzles in these two regions. Gas distribution inside the reaction chamber can be changed to meet the need of different processing conditions by adjusting the flow control valves mounted on the two conduits.